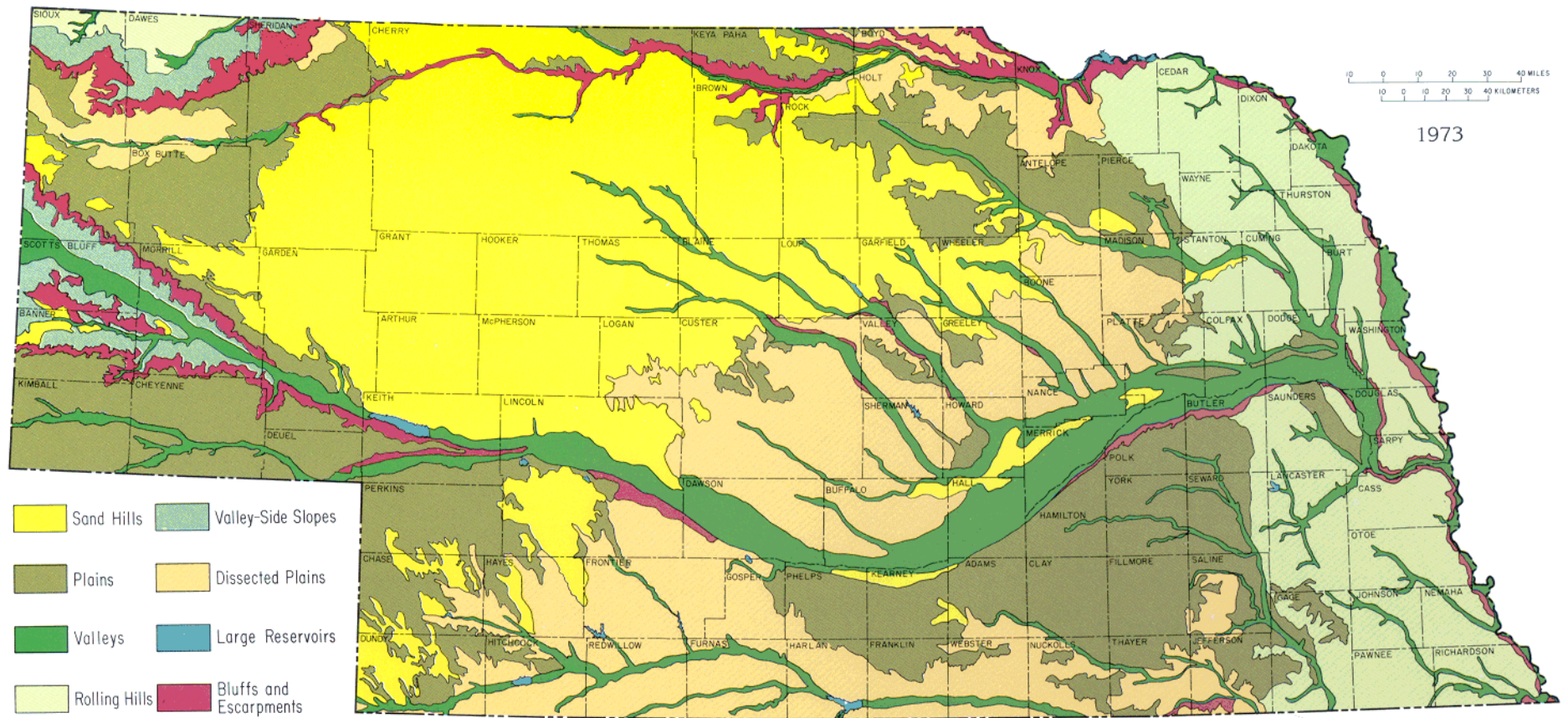


# Soil Parent Materials and Landscape Positions and Resulting General Soil Areas of Nebraska.

The Following maps show the variation throughout the state in soil parent materials, landscapes, and resulting soil associations. Compare each map for similarities and differences from place to place. Note the terms used for the different areas and read the descriptions included. An explanation of the various Parent material types are discussed in Chapter 3 of the Soil Survey Manual that is referenced in another part of this section.



**Valleys:** flat-lying land along the major streams. The materials of the valleys are stream-deposited silt, clay, sand and gravel. **Valley-side Slopes:** moderately sloping land that occurs between the escarpments and the major stream valleys in western Nebraska. These areas are mostly siltstone bedrock covered by a few feet to a few tens of feet of sand, gravel or silt. **Large Reservoirs:** constructed for purposes such as water storage for irrigation, generation of electricity, flood control or recreation. **Plains:** flat-lying land that lies above the valley. The materials of the Plains are sandstone or stream-deposited silt, clay, sand and gravel overlain by wind-deposited silt (called *loess*). **Dissected Plains:** hilly land with moderate to steep slopes, sharp ridge crests and remnants of the old, nearly level plain. These are old plains eroded by water and wind. **Sand Hills:** hilly land composed of low to high dunes of sand stabilized by a grass cover. The sand dunes mantle stream-deposited silt, sand and gravel and sandstone. **Rolling Hills:** hilly land with moderate to steep slopes and rounded ridge crests. In eastern Nebraska, the Rolling Hills are mostly glacial till that has been eroded and mantled by loess, while in northwestern Nebraska the hills were provided by the erosion of clay and clay-shale beds. **Bluffs and Escarpments:** rugged land with very steep and irregular slopes. Bedrock materials, such as sandstone, shale and limestone, are often exposed in these areas.

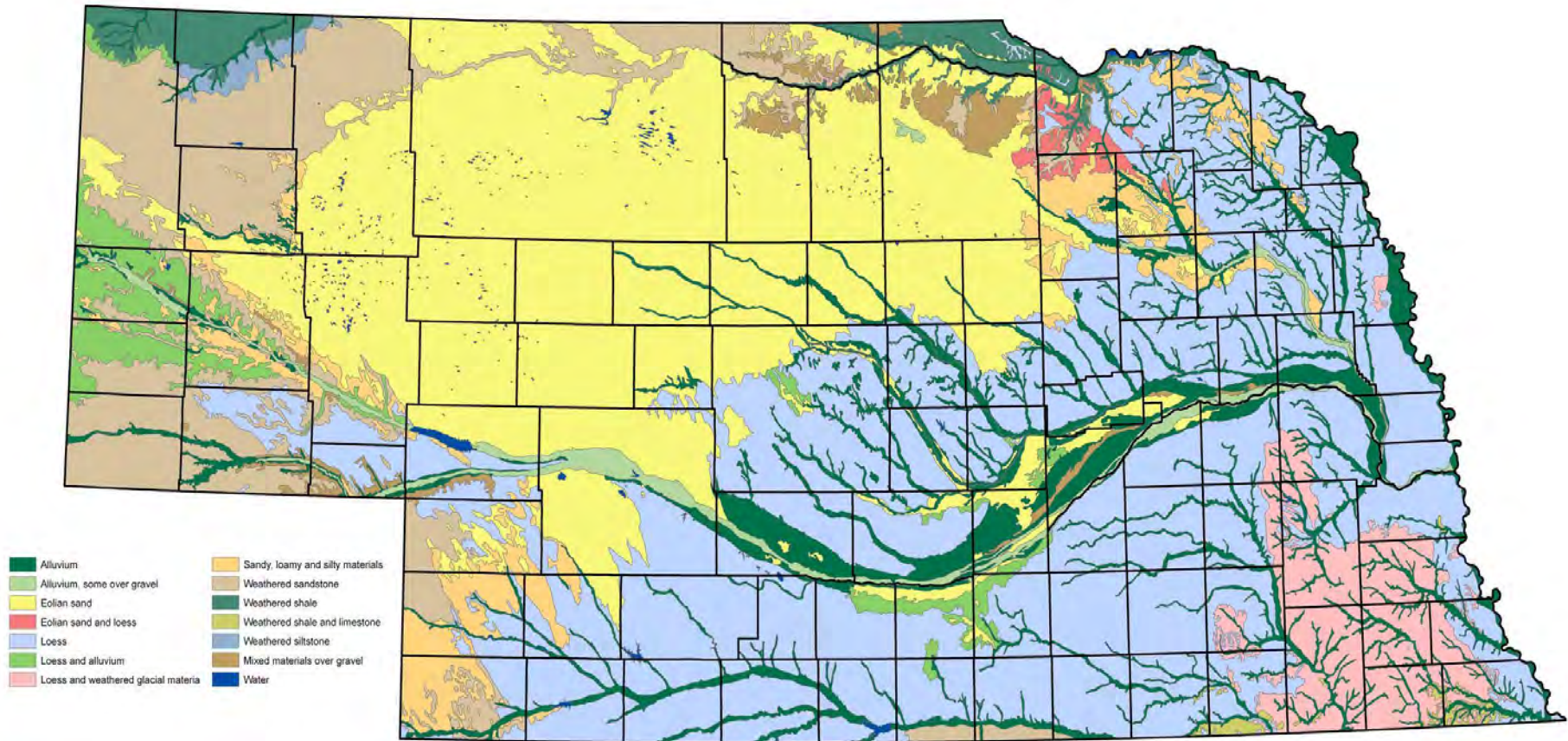


### Topographic regions map of Nebraska

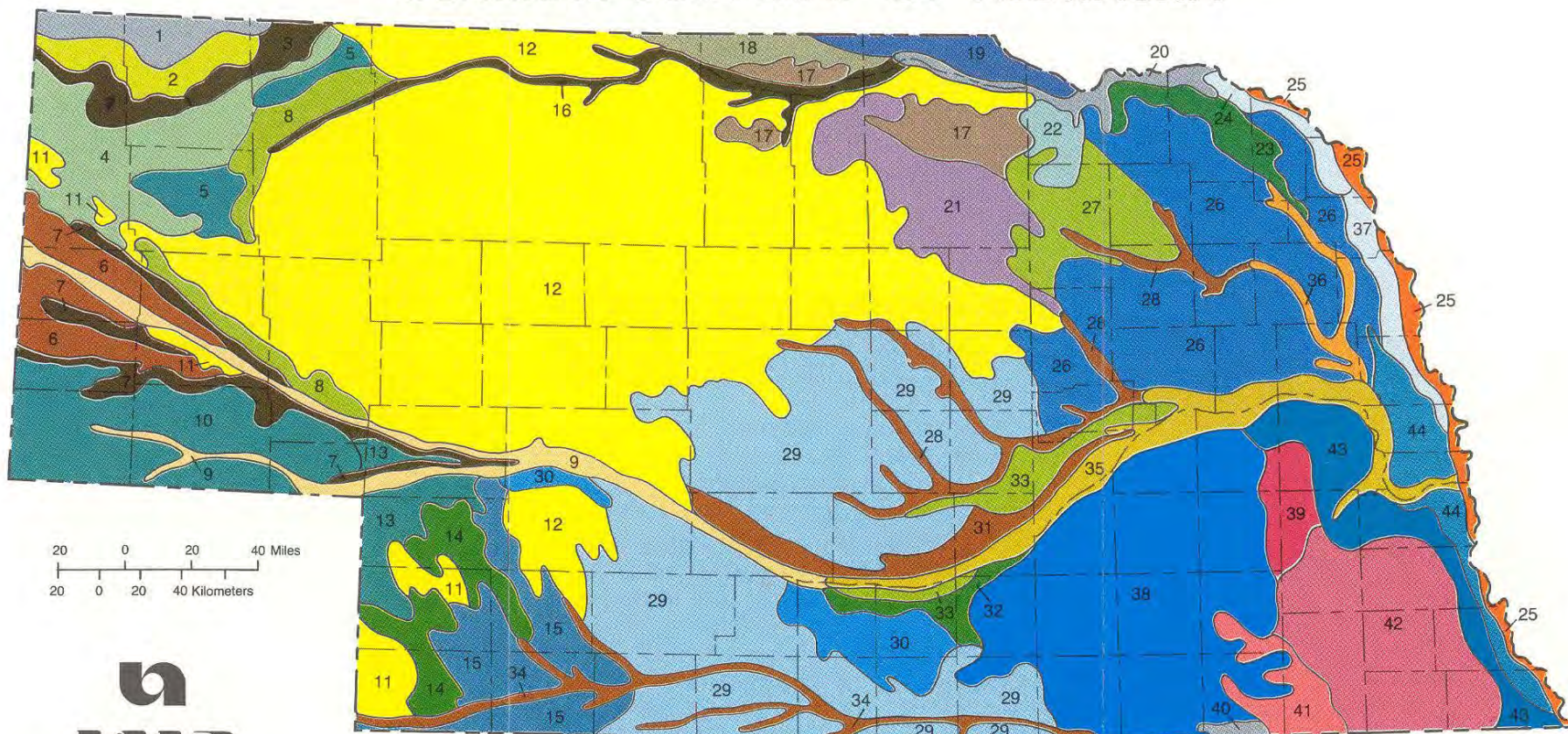
Conservation and Survey Division/Institute of Agriculture and Natural Resources  
University of Nebraska-Lincoln



# Parent Materials



# GENERAL SOIL MAP OF NEBRASKA



U.S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
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JANUARY 1988

CONSERVATION AND SURVEY DIVISION  
INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES  
UNIVERSITY OF NEBRASKA-LINCOLN  
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ANN M. MACK - CARTOGRAPHER

- 1 - Pierre-Samsil-Kyle
- 2 - Kadoka-Mitchell-Buften
- 3 - Canyon-Bridget-Rock outcrop
- 4 - Busher-Jayem-Tassel
- 5 - Keith-Alliance-Rosebud
- 6 - Tripp-Mitchell-Alice
- 7 - Tassel-Busher-Rock outcrop
- 8 - Jayem-Sarben-Valent
- 9 - Las-Gothenburg-Platte
- 10 - Rosebud-Alliance-Canyon
- 11 - Valent

- 12 - Valentine-Elsmere-Tryon
- 13 - Kuma-Rosebud-Satanta
- 14 - Satanta-Keith
- 15 - Kuma-Keith-Colby
- 16 - Tassel-McKelvie-Rock outcrop
- 17 - Jansen-O'Neill-Meadin
- 18 - Valentine-Duda-Tassel
- 19 - Onita-Reliance-Labu
- 20 - Labu-Bristow-Redstoe
- 21 - Els-Valentine-Loup
- 22 - Brunswick-Paka-Simeon

- 23 - Moody-Thurman
- 24 - Crofton-Alcester-Nora
- 25 - Albaton-Haynie-Sarpy
- 26 - Nora-Moody-Crofton
- 27 - Thurman-Boelus-Nora
- 28 - Hord-Boel-Inavale
- 29 - Coly-Uly-Holdrege
- 30 - Holdrege
- 31 - Cozad-Hord
- 32 - Kenesaw-Hersh
- 33 - Hersh-Valentine

- 34 - Hord-McCook-Hobbs
- 35 - Gibbon-Gothenburg-Platte
- 36 - Shell-Muir-Colo
- 37 - Ida-Monona
- 38 - Hastings-Crete-Fillmore
- 39 - Sharpsburg-Pawnee-Steinauer
- 40 - Kipson-Benfield-Crete
- 41 - Crete-Mayberry
- 42 - Wymore-Pawnee
- 43 - Sharpsburg
- 44 - Marshall-Ponca

# Parent Material and Landform Glossary

## Parent Materials

**parent material** – The unconsolidated and more or less chemically weathered mineral or organic matter from which a soil's solum is developed by pedogenic processes. GSST

**alluvial** – Pertaining to material or processes associated with transportation and/or subaerial deposition by concentrated running water. Compare – colluvial. GSST

**colluvium** – Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff. Compare – alluvium, slope alluvium, scree, talus, mass movement. HP

**eolian** – Pertaining to material transported and deposited (eolian deposit) by the wind. Includes clastic materials such as dune sands, sand sheets, loess deposits, and clay (e.g., parna). HP

**gravel** – The portion of fragments within a soil that range between 2 mm and 76 mm in size for USDA particle size classification.

**glaciation** – The formation, movement and recession of glaciers or ice sheets. A collective term for the geologic processes of glacial activity, including erosion and deposition, and the resulting effects of such action on the earth's surface. GG

**limestone** – A sedimentary rock consisting chiefly (more than 50 percent) of calcium carbonate, primarily in the form of calcite. Limestones are usually formed by a combination of organic and inorganic processes and include chemical and clastic (soluble and insoluble) constituents; many contain fossils. HP

**loess** – Material transported and deposited by wind and consisting predominantly of silt-size particles. Commonly a loess deposit thins and the mean-particle size decreases as distance from the source area increases. Loess sources are dominantly from either glacial meltwaters (i.e., "cold loess") or from non-glacial, arid environments, such as deserts (i.e., "hot loess"). [soil survey] Several types of loess deposits can be recognized based on mineralogical composition (calcareous loess, noncalcareous loess). SW & GSST

**residuum** – (residual soil material) Unconsolidated, weathered, or partly weathered mineral material that accumulates by disintegration of bedrock in place. Compare – colluvium, regolith, saprolite. HP

**sand** – The portion of the soil mineral fraction that ranges between 0.05 mm and 2 mm in size for USDA particle size classification.

**sandstone** – Sedimentary rock containing dominantly sand-size clastic particles. HP

**shale** – Sedimentary rock formed by induration of a clay, silty clay, or silty clay loam deposit and having the tendency to split into thin layers, i.e., fissility. HP

**siltstone** – An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay. GG

## Landform Terms

**landform** – Any physical, recognizable form or feature on the earth's surface, having a characteristic shape, internal composition, and produced by natural causes; a distinct individual produced by a set of processes. Landforms can span a large size (e.g., *dune* encompasses a number of feature including *parabolic dune*, which is tens-of-meters across and *seif dune*, which can be up to a 100 kilometers across. Landforms provide an empirical description of the earth's surface features. SW & GG

**breaks** – (colloquial: western USA) A landscape or large tract of steep, rough or broken land dissected by ravines and gullies and marks a sudden change in topography as from an elevated plain to lower hilly terrain, or a line of irregular cliffs at the edge of a mesa or a river (e.g., the Missouri River breaks). SW & GG

**escarpment** – A relatively continuous and steep slope or cliff produced by erosion or faulting and that topographically interrupts or breaks the general continuity of more gently sloping land surfaces . The term is most commonly applied to cliffs produced by differential erosion. Synonym: "scarp." SW & HP

**hill** – A generic term for an elevated area of the land surface, rising at least 30 m (100 ft.) to as much as 300 meters (approx. 1000 ft.) above surrounding lowlands, usually with a nominal summit area relative to bounding slopes, a well-defined, rounded outline and slopes that generally exceed 15 percent. A hill can occur as a single, isolated mass or in a group. A hill can be further specified based on the magnitude of local relief:

*low hill* (30 – 90 m) or *high hill* (90 - 300 m). Informal distinctions between a hill and a mountain are often arbitrary and dependent on local convention. Compare – hillock, plateau, mountain, foothills, hills. SW & HP

**bluff** – (a) A high bank or bold headland, with a broad, precipitous, sometimes rounded cliff face overlooking a plain or body of water, especially on the outside of a stream meander; e.g., a river bluff. (b) (not preferred use breaks). GG

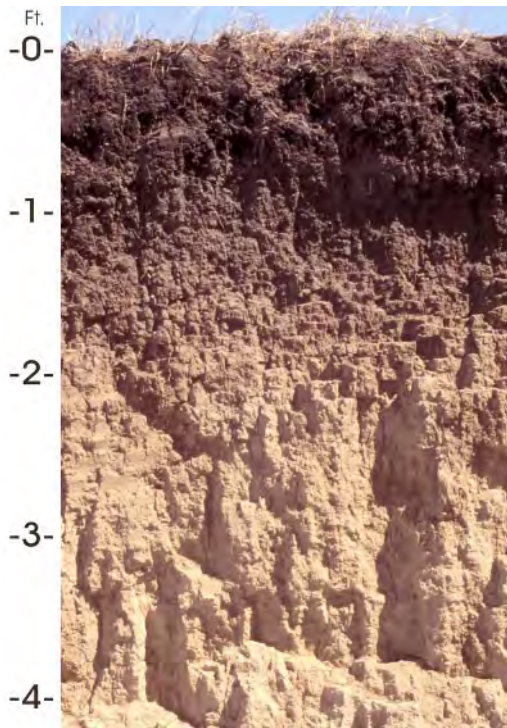
**plain** – A general term referring to any flat, lowland area, large or small, at a low elevation. Specifically, any extensive region of comparatively smooth and level gently undulating land. A plain has few or no prominent hills or valleys but sometimes has considerable slope, and usually occurs at low elevation relative to surrounding areas. Where dissected, remnants of a plain can form the local uplands. A plain may be forested or bare of trees and may be formed by deposition or erosion. Compare – lowland, plateau. SW & GG

**sandhills** – A region of semi-stabilized sand dunes or sandy hills, either covered with vegetation or bare, as in north-central Nebraska and the midlands of the Carolinas. GG

**valley** – An elongate, relatively large, externally drained depression of the Earth's surface that is primarily developed by stream erosion or glacial activity. Compare – basin. HP

**valley side** – The sloping to very steep surfaces between the valley floor and summits of adjacent uplands. Well-defined, steep valley sides have been termed valley walls (not recommended). Note: Scale, relief, and perspective may require use of closely related terms such as hillslope or mountain slope. HP

# HOLDREGE -- NEBRASKA STATE SOIL



## Holdrege Soil Profile

Surface layer: dark grayish brown silt loam  
Subsoil - upper: dark grayish brown silty clay loam  
Subsoil - middle: light brownish gray silty clay loam  
Subsoil - lower: light gray silt loam

Holdrege soils are extensive, making up about 1.8 million acres in south-central Nebraska. Most areas of these soils are used for crops, pasture, or rangeland. Corn, soybeans, and small grain are the main crops grown under dryland conditions. Many areas are irrigated.

The Holdrege series consists of deep, nearly level to gently sloping, well-drained soils on uplands. These soils formed in silty, calcareous loess. Slopes typically range from 0 to 6 percent, but they are as much as 15 percent in some areas. The average annual precipitation is about 22 inches, and the annual average snowfall is about 22 inches. The average annual air temperature is about 50 degrees.

The Holdrege series was established in Phelps County, Nebraska, in 1917. It is named after a community in the county. It was selected as the Nebraska State soil in 1979.



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